Homework6----Xiaoyu Xia

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1.

(a)

*A subnet with pre x 128.119.40.192/26 means 32-26=6 bits to use🡪* 2 的 6 次方 等於 64 *addresses.*

*In practice, I get 64-2=62 addresses that can be assigned to hosts (all 0s and all 1s cases are special).*

*So, in the range of 128.119.40.193----128.119.40.254, we can assign 128.119.40.222 to a device in this network.*

(b)

*We want to create four subnets from this block, so we need 2 bits for that. So the prefix should be a.b.c.d/28 (because 26+2=28). For each subnet, it can include* 2 的 4 次方 等於 16 *hosts.*

*1. 128.119.40.192/28*

*2. 128.119.40.208/28*

*3. 128.119.40.224/28*

*4 128.119.40.240/28*

2.

*(a)FIFO service:*

*图表

描述已自动生成*

*(b)priority service:*

*图片包含 图表

描述已自动生成*

*(c)round-robin service:*

*图片包含 图表

描述已自动生成*

*(d)WFQ:*

*In this situation, the position of packet 6, it’s supposed to be packet 11(but it hasn’t arrived which means the queue for class 1 is empty), so for the next processing we should choose it from class 2. At that time, the first packet in class2 is packet 6, so we pick packet 6 to go into service.*

*图表

描述已自动生成*

*(e)comparison:*

*As we can see, the average delay for all these four services is the same.*

*FIFO does not classify messages; FIFO lets messages enter the queue in the order they arrive at the interface, and lets messages exit the queue in the order they entered, with first-in messages going out first and last-in messages going out second.*

*P ( Priority) scheduling is the scheduling of queues in order of priority.*

*RR scheduling uses polling for multiple queues. RR polls multiple queues in a circular fashion. If the polled queue is not empty, a message is fetched from that queue; if the queue is empty, the queue is skipped directly, and the scheduler does not wait.*

*Advantages of WFQ.*

*1 Different queues get a fair chance of scheduling, which balances the delay of each flow in general.*

*2、Short and long messages get fair scheduling: If multiple long and short messages are waiting to be sent simultaneously between different queues, let the short messages get priority scheduling, thus reducing the inter-message jitter of each stream in general.*

*3. Statistically speaking, the smaller the weight, the less bandwidth is allocated. The larger the weight, the more bandwidth is allocated.*